

CLAIMS

We claim:

1. A large-diameter tungsten-lanthana rod having an elongated grain structure substantially parallel to the longitudinal axis of the rod wherein the diameter of the rod is greater than 0.625 inches.
2. The tungsten-lanthana rod of claim 1 wherein the lanthana content of the rod is from 0.3 weight percent to 2.5 weight percent.
3. The tungsten-lanthana rod of claim 1 wherein the rod was subjected to at least about a 40% reduction-in-area to achieve the diameter.
4. The tungsten-lanthana rod of claim 1 wherein the rod has a UTS of from about 70 to about 85 ksi, a YS of from about 60 to about 80 ksi and a hardness of from about 40 to about 43 Rockwell C.
5. The tungsten-lanthana rod of claim 1 wherein the rod was subjected to about a 70% reduction-in-area to achieve the diameter.
6. The tungsten-lanthana rod of claim 1 wherein the diameter of the rod ranges from greater than 0.625 inches to 2.250 inches.

7. The tungsten-lanthana rod of claim 4 wherein the lanthana content of the rod is from 0.3 weight percent to 2.5 weight percent.

8. A method of making a large-diameter tungsten-lanthana rod comprising rolling a tungsten-lanthana rod at a temperature greater than 1400°C and less than 1700°C until at least about a 40% reduction in the cross-sectional area of the rod is achieved.

9. The method of claim 8 wherein the rolling is performed by multiple passes.

10. The method of claim 8 wherein at least about a 70% reduction in cross-sectional area is achieved.

11. The method of claim 8 wherein the rod after rolling has a UTS of from about 70 to about 85 ksi, a YS of from about 60 to about 80 ksi and a hardness of from about 40 to about 43 Rockwell C.

12. The method of claim 11 wherein the tungsten-lanthana rod contains from 0.3 to 2.5 weight percent lanthana.

13. The method of claim 8 wherein the rod is stress relieved at a point between 25 and 45% reduction in cross-sectional area.

14. The method of claim 8 wherein the rod is stress relieved after rolling.